

## CLAIMS

*What is claimed is:*

5           1.       In a cable network headend, a method of applying a specified quality of service to a multicast transmission on a cable network, the method comprising:

                  receiving a level three communication specifying one or more quality of service parameters for the multicast transmission;

                  creating a virtual cable modem and specifying one more quality of service parameters for the virtual cable modem, thereby controlling the multicast transmission quality of service on the cable network; and

                  providing the multicast transmission on the cable network according to the specified quality of service parameters.

15           2.       The method of claim 1, further comprising receiving a level three message prior to providing the multicast transmission on the cable network.

                  3.       The method of claim 2, wherein the message is provided using RSVP.

20           4.       The method of claim 1, wherein creating a virtual cable modem comprises creating a record of the virtual cable modem in a table of cable modems provided in the cable network headend.

                  5.       The method of claim 4, wherein the table of cable modems contains  
25   the IP addresses of cable modems connected to the cable network headend.

6. The method of claim 4, wherein the record identifies the virtual cable modem by a protocol specified multicast address.

7. The method of claim 6, wherein the protocol specified multicast  
5 address is a Class D IP address.

8. The method of claim 1, wherein creating a virtual cable modem comprises creating a flow list associated with the virtual cable modem and specifying the quality of service parameters for the multicast transmission.

10 9. The method of claim 8, wherein creating a virtual cable modem further comprises specifying a classifier list specifying types of traffic that may be received by the virtual cable modem.

15 10. The method of claim 1, wherein the cable network employs DOCSIS to provide the multicast transmission.

11. The method of claim 12, wherein the cable network employs DOCSIS, version 1.1.

20 12. The method of claim 11, wherein specifying the one more quality of service parameters for the virtual cable modem comprises specifying quality of service parameters in a format allowed for DOCSIS unicast transmissions.

13. The method of claim 11, wherein the cable network headend receives request to receive a multicast packet from a host connected to the cable network headend prior to providing the multicast transmission.

5 14. The method of claim 13, wherein the cable network headend receives an IGMP JOIN from a host on the cable network prior to providing the multicast transmission.

10 15. A computer program product comprising a machine readable medium on which is provided program instructions for applying quality of service to a multicast transmission on a cable network, the instructions encoding a method comprising:

receiving a level three communication specifying one or more quality of service parameters for the multicast transmission;

15 creating a virtual cable modem and specifying one more quality of service parameters for the virtual cable modem, thereby controlling the multicast transmission quality of service on the cable network; and

providing the multicast transmission on the cable network according to the specified quality of service parameters.

20 16. The computer program product of claim 15, wherein instructions for providing the multicast transmission on the cable network further comprise instructions for receiving a level three message prior to providing the multicast transmission on the cable network.

17. The computer program product of claim 16, wherein instructions for receiving the level three communication further comprise instructions for receiving an RSVP message.

5 18. The computer program product of claim 15, wherein instructions for creating a virtual cable modem include instructions for creating a record of the virtual cable modem in a table of cable modems provided in the cable network headend.

19. An apparatus for applying a specified quality of service to a multicast transmission on a cable network, the apparatus comprising:

10 a network interface allowing the apparatus to connect with an external network and receive one or more packets associated with the multicast transmission, wherein the one or more packets contain quality of service parameters for the multicast transmission;

15 a cable network interface allowing the apparatus to connect with a cable network and introduce the multicast transmission onto the cable network; and

a processor configured or designed to create a virtual cable modem associated with one or more quality of service parameters, thereby controlling the multicast transmission quality of service on the cable network.

20 20. The apparatus of claim 19, further comprising a memory device on which the processor can store a table of cable modems, including the virtual cable modem.

21. The apparatus of claim 20, wherein the memory device can store a classifier table and a flow table associated with the virtual cable modem.

22. The apparatus of claim 19, wherein the one or more packets containing  
5 quality of service parameters is an RSVP PATH message.

23. The apparatus of claim 19, wherein the cable network employs DOCSIS to provide the multicast transmission.

10 24. The method of claim 23, wherein the cable network employs DOCSIS, version 1.1.

25. The apparatus of claim 19, wherein the cable network headend receives an IGMP JOIN message prior to making the multicast transmission.

15 26. An apparatus for applying a specified quality of service to a multicast transmission on a cable network, the apparatus comprising:

means for receiving from an external network one or more packets associated with quality of service parameters for a multicast stream;

20 means for transmitting a stream of multicast content to one or more cable modems on the cable network; and

processing means for applying the quality of service parameters specified in the packets received from the external network to the transmission of the stream of multicast content to one or more cable modems on the cable network.